1600

RAW SEQUENCE LISTING   DATE: 03/07/2002
PATENT APPLICATION: US/09/911,826A   TIME: 15:13:40

Input Set : **A:\pto.vsk.txt**
Output Set: **N:\CRF3\03072002\I911826A.raw**

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    3 <110> APPLICANT: Rotin, Daniela and Pham, Nam
    5 <120> TITLE OF INVENTION: RAS Activator Nucleic Acid Molecules, Polypeptides and
    6       Methods of Use
    8 <130> FILE REFERENCE: DDW-5001-US
   10 <140> CURRENT APPLICATION NUMBER: 09/911,826A
C--> 11 <141> CURRENT FILING DATE: 2002-02-26
   13 <150> PRIOR APPLICATION NUMBER: PCT/CA00/00042
   14 <151> PRIOR FILING DATE: 2000-01-20
   16 <150> PRIOR APPLICATION NUMBER: 2,259,830
   17 <151> PRIOR FILING DATE: 1999-01-20
   19 <160> NUMBER OF SEQ ID NOS: 27
   21 <170> SOFTWARE: PatentIn Ver. 2.1
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   24 <211> LENGTH: 6568
   25 <212> TYPE: DNA
   26 <213> ORGANISM: Homo sapiens
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   30 <222> LOCATION: (63)..(4562)
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   36    Met Lys Pro Leu Ala Ile Pro Ala Asn His Gly Val Met Gly Gln
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   39 cag gag aaa cac tca ctt cct gca gat ttc aca aaa ctg cat ctt act     155
   40 Gln Glu Lys His Ser Leu Pro Ala Asp Phe Thr Lys Leu His Leu Thr
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   43 gac agt ctc cac cca cag gtg acc cac gtt tct tct agc cat tca gga     203
   44 Asp Ser Leu His Pro Gln Val Thr His Val Ser Ser Ser His Ser Gly
   45                35                  40                  45
   47 tgt agt atc act agt gat tct ggg agc agc agt ctt tct gat atc tac     251
   48 Cys Ser Ile Thr Ser Asp Ser Gly Ser Ser Ser Leu Ser Asp Ile Tyr
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   51 cag gcc aca gaa agc gag gct ggt gat atg gac ctg agt ggg ttg cca     299
   52 Gln Ala Thr Glu Ser Glu Ala Gly Asp Met Asp Leu Ser Gly Leu Pro
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   55 gaa aca gca gtg gat tcc gaa gac gac gac gat gaa gaa gac att gag     347
   56 Glu Thr Ala Val Asp Ser Glu Asp Asp Asp Glu Glu Asp Ile Glu
   57 80                  85                  90                  95
   59 aga gca tca gat cct ctg atg agc agg gac att gtg aga gac tgc cta     395
   60 Arg Ala Ser Asp Pro Leu Met Ser Arg Asp Ile Val Arg Asp Cys Leu
   61                100                 105                 110
   63 gag aag gac cca att gac cgg aca gat gat gac att gaa caa ctc ttg     443
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Input Set : **A:\pto.vsk.txt**
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67 gaa ttt atg cac cag ttg cct gct ttt gcc aat atg aca atg tca gtg   491
68 Glu Phe Met His Gln Leu Pro Ala Phe Ala Asn Met Thr Met Ser Val
69          130             135             140
71 agg cga gaa ctc tgt gct gtg atg gtg ttc gca gtg gtg gaa aga gca   539
72 Arg Arg Glu Leu Cys Ala Val Met Val Phe Ala Val Val Glu Arg Ala
73          145             150             155
75 ggg acc ata gtg tta aat gat ggt gaa gag ctg gac tcc tgg tca gtg   587
76 Gly Thr Ile Val Leu Asn Asp Gly Glu Glu Leu Asp Ser Trp Ser Val
77 160             165             170             175
79 att ctc aat gga tct gtg gaa gtg act tat cca gat gga aaa gca gaa   635
80 Ile Leu Asn Gly Ser Val Glu Val Thr Tyr Pro Asp Gly Lys Ala Glu
81              180             185             190
83 ata ctg tgc atg gga aat agt ttt ggt gtc tct cct acc atg gac aaa   683
84 Ile Leu Cys Met Gly Asn Ser Phe Gly Val Ser Pro Thr Met Asp Lys
85              195             200             205
87 gaa tac atg aaa gga gtg atg aga aca aag gtg gat gac tgc cag ttt   731
88 Glu Tyr Met Lys Gly Val Met Arg Thr Lys Val Asp Asp Cys Gln Phe
89          210             215             220
91 gtc tgc ata gcc cag caa gat tac tgc cgt att ctc aat caa gta gaa   779
92 Val Cys Ile Ala Gln Gln Asp Tyr Cys Arg Ile Leu Asn Gln Val Glu
93          225             230             235
95 aag aac atg caa aaa gtt gaa gag gaa gga gag att gtt atg gtg aaa   827
96 Lys Asn Met Gln Lys Val Glu Glu Glu Gly Glu Ile Val Met Val Lys
97 240             245             250             255
99 gaa cac cga gaa ctt gat cga act gga aca aga aag gga cac att gtc   875
100 Glu His Arg Glu Leu Asp Arg Thr Gly Thr Arg Lys Gly His Ile Val
101             260             265             270
103 atc aag ggt acc tca gaa agg tta aca atg cat ttg gtg gaa gag cat   923
104 Ile Lys Gly Thr Ser Glu Arg Leu Thr Met His Leu Val Glu Glu His
105             275             280             285
107 tca gta gta gat cca aca ttc ata gaa gac ttt ctg ttg acc tat agg   971
108 Ser Val Val Asp Pro Thr Phe Ile Glu Asp Phe Leu Leu Thr Tyr Arg
109         290             295             300
111 act ttt ctt tct agc cca atg gaa gtg ggc aaa aag tta ttg gag tgg   1019
112 Thr Phe Leu Ser Ser Pro Met Glu Val Gly Lys Lys Leu Leu Glu Trp
113         305             310             315
115 ttt aat gac ccg agc ctc agg gat aag gtt aca cgg gta gta tta ttg   1067
116 Phe Asn Asp Pro Ser Leu Arg Asp Lys Val Thr Arg Val Val Leu Leu
117 320             325             330             335
119 tgg gta aat aat cac ttc aat gac ttt gaa gga gat cct gca atg act   1115
120 Trp Val Asn Asn His Phe Asn Asp Phe Glu Gly Asp Pro Ala Met Thr
121             340             345             350
123 cga ttt tta gaa gaa ttt gaa aac aat ctg gaa aga gag aaa atg ggt   1163
124 Arg Phe Leu Glu Glu Phe Glu Asn Asn Leu Glu Arg Glu Lys Met Gly
125         355             360             365
127 gga cac cta agg ctg ttg aat atc gcg tgt gct gct aaa gca aaa aga   1211
128 Gly His Leu Arg Leu Leu Asn Ile Ala Cys Ala Ala Lys Ala Lys Arg
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131 aga ttg atg acg tta aca aaa cca tcc cga gaa gct cct ttg cct ttt   1259
132 Arg Leu Met Thr Leu Thr Lys Pro Ser Arg Glu Ala Pro Leu Pro Phe
133         385                  390                 395
135 atc tta ctt gga ggc tct gag aag gga ttt gga atc ttt gtt gac agt   1307
136 Ile Leu Leu Gly Gly Ser Glu Lys Gly Phe Gly Ile Phe Val Asp Ser
137 400                  405                 410                 415
139 gta gat tca ggt agc aaa gca act gaa gca ggc ttg aaa cgg ggg gat   1355
140 Val Asp Ser Gly Ser Lys Ala Thr Glu Ala Gly Leu Lys Arg Gly Asp
141                  420                 425                 430
143 cag ata tta gaa gta aat ggc caa aac ttt gaa aac att cag ctg tca   1403
144 Gln Ile Leu Glu Val Asn Gly Gln Asn Phe Glu Asn Ile Gln Leu Ser
145             435                  440                 445
147 aaa gct atg gaa att ctt aga aat aac aca cat tta tct atc act gtg   1451
148 Lys Ala Met Glu Ile Leu Arg Asn Asn Thr His Leu Ser Ile Thr Val
149         450                  455                 460
151 aaa acc aat tta ttt gta ttt aaa gaa ctt cta aca aga ttg tca gaa   1499
152 Lys Thr Asn Leu Phe Val Phe Lys Glu Leu Leu Thr Arg Leu Ser Glu
153         465                  470                 475
155 gag aaa aga aat ggt gcc ccc cac ctt cct aaa att ggt gac att aaa   1547
156 Glu Lys Arg Asn Gly Ala Pro His Leu Pro Lys Ile Gly Asp Ile Lys
157 480                  485                 490                 495
159 aag gcc agt cgc tac tcc att cca gat ctt gct gta gat gta gaa cag   1595
160 Lys Ala Ser Arg Tyr Ser Ile Pro Asp Leu Ala Val Asp Val Glu Gln
161                  500                 505                 510
163 gtg ata gga ctt gaa aaa gtg aac aaa aaa agt aaa gcc aac act gtg   1643
164 Val Ile Gly Leu Glu Lys Val Asn Lys Lys Ser Lys Ala Asn Thr Val
165             515                  520                 525
167 gga gga agg aac aag ctg aaa aag ata ctc gac aag act cgg atc agt   1691
168 Gly Gly Arg Asn Lys Leu Lys Lys Ile Leu Asp Lys Thr Arg Ile Ser
169         530                  535                 540
171 atc ttg cca cag aaa cca tac aat gat att ggg att ggt cag tct caa   1739
172 Ile Leu Pro Gln Lys Pro Tyr Asn Asp Ile Gly Ile Gly Gln Ser Gln
173         545                  550                 555
175 gat gac agc ata gta gga tta agg cag aca aag cac atc cca act gca   1787
176 Asp Asp Ser Ile Val Gly Leu Arg Gln Thr Lys His Ile Pro Thr Ala
177 560                  565                 570                 575
179 ttg cct gtc agt gga acc tta tca tcc agt aat cct gat tta ttg cag   1835
180 Leu Pro Val Ser Gly Thr Leu Ser Ser Ser Asn Pro Asp Leu Leu Gln
181                  580                 585                 590
183 tca cat cat cgc att tta gac ttc agt gct act cct gac ttg cca gat   1883
184 Ser His His Arg Ile Leu Asp Phe Ser Ala Thr Pro Asp Leu Pro Asp
185             595                  600                 605
187 caa gtg cta agg gtt ttt aag gct gat cag caa agc cgc tac atc atg   1931
188 Gln Val Leu Arg Val Phe Lys Ala Asp Gln Gln Ser Arg Tyr Ile Met
189         610                  615                 620
191 atc agt aag gac act aca gca aag gaa gtg gtc att cag gct atc agg   1979
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196 Glu Phe Ala Val Thr Ala Thr Pro Asp Gln Tyr Ser Leu Cys Glu Val
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199 tct gtc aca cct gag gga gta atc aaa caa aga aga ctt cca gat cag   2075
200 Ser Val Thr Pro Glu Gly Val Ile Lys Gln Arg Arg Leu Pro Asp Gln
201             660             665             670
203 ctt tcc aaa ctt gca gac aga ata caa ctg agt gga agg tat tat ctg   2123
204 Leu Ser Lys Leu Ala Asp Arg Ile Gln Leu Ser Gly Arg Tyr Tyr Leu
205             675             680             685
207 aaa aac aac atg gaa aca gaa act ctt tgt tca gat gaa gat gct cag   2171
208 Lys Asn Asn Met Glu Thr Glu Thr Leu Cys Ser Asp Glu Asp Ala Gln
209             690             695             700
211 gag ttg ttg aga gag agt caa att tcc ctc ctt cag ctc agc act gtg   2219
212 Glu Leu Leu Arg Glu Ser Gln Ile Ser Leu Leu Gln Leu Ser Thr Val
213     705             710             715
215 gaa gtt gca aca cag ctc tct atg cga aat ttt gaa ctc ttt cgc aac   2267
216 Glu Val Ala Thr Gln Leu Ser Met Arg Asn Phe Glu Leu Phe Arg Asn
217 720             725             730             735
219 att gaa cct act gaa tat ata gat gat tta ttt aaa ctc aga tca aaa   2315
220 Ile Glu Pro Thr Glu Tyr Ile Asp Asp Leu Phe Lys Leu Arg Ser Lys
221             740             745             750
223 acc agc tgt gcc aac ctg aag aga ttt gaa gaa gtc att aac cag gaa   2363
224 Thr Ser Cys Ala Asn Leu Lys Arg Phe Glu Glu Val Ile Asn Gln Glu
225             755             760             765
227 aca ttt tgg gta gca tct gaa att ctc aga gaa aca aac cag ctg aag   2411
228 Thr Phe Trp Val Ala Ser Glu Ile Leu Arg Glu Thr Asn Gln Leu Lys
229             770             775             780
231 agg atg aag atc att aag cat ttc atc aag ata gca ctg cac tgt agg   2459
232 Arg Met Lys Ile Ile Lys His Phe Ile Lys Ile Ala Leu His Cys Arg
233     785             790             795
235 gaa tgc aag aat ttt aac tca atg ttt gca atc atc agt ggc cta aac   2507
236 Glu Cys Lys Asn Phe Asn Ser Met Phe Ala Ile Ile Ser Gly Leu Asn
237 800             805             810             815
239 ctg gca cca gtg gca aga ctg cga acg acc tgg gag aaa ctt ccc aat   2555
240 Leu Ala Pro Val Ala Arg Leu Arg Thr Thr Trp Glu Lys Leu Pro Asn
241             820             825             830
243 aaa tac gaa aaa cta ttt caa gat ctc caa gac ctg ttt gat cct tcc   2603
244 Lys Tyr Glu Lys Leu Phe Gln Asp Leu Gln Asp Leu Phe Asp Pro Ser
245             835             840             845
247 aga aac atg gca aaa tat cgt aat gtt ctc aat agt caa aat cta caa   2651
248 Arg Asn Met Ala Lys Tyr Arg Asn Val Leu Asn Ser Gln Asn Leu Gln
249             850             855             860
251 cct ccc ata atc cct cta ttc cca gtt atc aaa aag gat ctc acc ttc   2699
252 Pro Pro Ile Ile Pro Leu Phe Pro Val Ile Lys Lys Asp Leu Thr Phe
253     865             870             875
255 ctt cac gaa gga aat gac tca aaa gta gac ggg ctg gtc aat ttt gag   2747
256 Leu His Glu Gly Asn Asp Ser Lys Val Asp Gly Leu Val Asn Phe Glu
257 880             885             890             895
259 aag cta agg atg att gca aaa gaa att cgt cac gtt ggc cga atg gct   2795
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Output Set: N:\CRF3\03072002\I911826A.raw

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264 Ser Val Asn Met Asp Pro Ala Leu Met Phe Arg Thr Arg Lys Lys Lys
265             915             920             925
267 tgg cgg agt ttg ggg tct ctc agc cag ggt agt aca aat gca aca gtg   2891
268 Trp Arg Ser Leu Gly Ser Leu Ser Gln Gly Ser Thr Asn Ala Thr Val
269             930             935             940
271 cta gat gtt gct cag aca ggt ggt cat aaa aag cgg gta cgt cgt agt   2939
272 Leu Asp Val Ala Gln Thr Gly Gly His Lys Lys Arg Val Arg Arg Ser
273         945             950             955
275 tcc ttt ctc aat gcc aaa aag ctt tat gaa gat gcc caa atg gct cga   2987
276 Ser Phe Leu Asn Ala Lys Lys Leu Tyr Glu Asp Ala Gln Met Ala Arg
277 960             965             970             975
279 aaa gtg aag cag tac ctt tcc aat ttg gag cta gaa atg gac gag gag   3035
280 Lys Val Lys Gln Tyr Leu Ser Asn Leu Glu Leu Glu Met Asp Glu Glu
281             980             985             990
283 agt ctt cag aca tta tct ctg cag tgt gag cca gca acc aac aca ttg   3083
284 Ser Leu Gln Thr Leu Ser Leu Gln Cys Glu Pro Ala Thr Asn Thr Leu
285             995             1000            1005
287 cct aag aat cct ggt gac aaa aag cct gtc aaa tcc gag acc tct cca   3131
288 Pro Lys Asn Pro Gly Asp Lys Lys Pro Val Lys Ser Glu Thr Ser Pro
289         1010            1015            1020
291 gta gct cca agg gca ggg tca caa cag aaa gct cag tcc ctg cca cag   3179
292 Val Ala Pro Arg Ala Gly Ser Gln Gln Lys Ala Gln Ser Leu Pro Gln
293         1025            1030            1035
295 ccc cag cag cag cca cca cca gca cat aaa atc aac cag gga cta cag   3227
296 Pro Gln Gln Gln Pro Pro Pro Ala His Lys Ile Asn Gln Gly Leu Gln
297 1040            1045            1050            1055
299 gtt ccc gcc gtg tcc ctt tat cct tca cgg aag aaa gtg ccc gta aag   3275
300 Val Pro Ala Val Ser Leu Tyr Pro Ser Arg Lys Lys Val Pro Val Lys
301             1060            1065            1070
303 gat ctc cca cct ttt ggc ata aac tct cca caa gct tta aaa aaa att   3323
304 Asp Leu Pro Pro Phe Gly Ile Asn Ser Pro Gln Ala Leu Lys Lys Ile
305         1075            1080            1085
307 ctt tct ttg tct gaa gaa gga agt ttg gaa cgt cac aag aaa cag gct   3371
308 Leu Ser Leu Ser Glu Glu Gly Ser Leu Glu Arg His Lys Lys Gln Ala
309         1090            1095            1100
311 gaa gat aca ata tca aat gca tct tcg cag ctt tct tct cct cct act   3419
312 Glu Asp Thr Ile Ser Asn Ala Ser Ser Gln Leu Ser Ser Pro Pro Thr
313     1105            1110            1115
315 tct cca cag agt tct cca agg aaa ggc tat act ttg gct ccc agt ggt   3467
316 Ser Pro Gln Ser Ser Pro Arg Lys Gly Tyr Thr Leu Ala Pro Ser Gly
317 1120            1125            1130            1135
319 act gtg gat aat ttt tca gat tct ggt cac agt gaa att tct tca cga   3515
320 Thr Val Asp Asn Phe Ser Asp Ser Gly His Ser Glu Ile Ser Ser Arg
321             1140            1145            1150
323 tcc agt att gtt agc aat tcg tct ttt gac tca gtg cca gtc tca ctg   3563
324 Ser Ser Ile Val Ser Asn Ser Ser Phe Asp Ser Val Pro Val Ser Leu
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RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 03/07/2002
PATENT APPLICATION: US/09/911,826A   TIME: 15:13:41

Input Set : A:\pto.vsk.txt
Output Set: N:\CRF3\03072002\I911826A.raw

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:4; Xaa Pos. 203,227,239,271,279
Seq#:5; Xaa Pos. 16,18,45,59,61,151,166,215
Seq#:6; Xaa Pos. 1,35,123,178,239
Seq#:15; Xaa Pos. 50

VERIFICATION SUMMARY   DATE: 03/07/2002
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L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:746 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:192
L:752 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:224
L:758 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:256
L:761 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:272
L:776 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:0
L:779 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:16
L:782 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:32
L:785 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:48
L:803 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:144
L:806 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:160
L:815 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:208
L:836 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6 after pos.:0
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L:857 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6 after pos.:112
L:869 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6 after pos.:176
L:878 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6 after pos.:224
L:1258 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15 after pos.:48
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